Puget Sound Air Pollution Control Agency

HEREBY ISSUES AN ORDER OF APPROVAL
TO CONSTRUCT, INSTALL, OR ESTABLISH

Registration No. 11656

Notice of Construction No. 5193

Date JAN 2 4 1994

Replace Glass Melting Furnace #5 with oxygen-fuel firing furnace (rated at 205 tons/day) at 35,600 cfm (350F) and retain current electric boosting.

JOHN R MINO, SENIOR ENGINEER, ENVIR

APPLICANT
BALL-INCON GLASS PACKAGING CORP
1509 S MACEDONIA
MUNCIE IN 47302

OWNER
BALL-INCON GLASS PACKAGING CORP
5801 E MARGINAL WY S
SEATTLE WA 98134-2497

INSTALLATION ADDRESS

BALL-INCON GLASS PACKAGING CORP, 5801 E MARGINAL WY S, SEATTLE, WA, 98134

THIS ORDER IS ISSUED SUBJECT TO THE FOLLOWING RESTRICTIONS AND CONDITIONS

1. Approval is hereby granted as provided in Article 6 of Regulation I of the Puget Sound Air Pollution Control Agency to the applicant to install or establish the equipment, device or process described hereon at the INSTALLATION ADDRESS in accordance with the plans and specifications on file in the Engineering Division of PSAPCA.

   Compliance with this ORDER and its conditions does not relieve the owner or operator from the responsibility of compliance with Regulations I, II or III, RCW 70.94 or any other emission control requirements, nor from the resulting liabilities and/or legal remedies for failure to comply. Section 5.05(e) of Regulation I requires that the owner or operator must develop and implement an operation and maintenance (O&M) plan to assure continuous compliance with Regulations I, II, and III.

3. This approval does not relieve the applicant or owner of any requirement of any other governmental agency.
4. Ball-Incon shall submit a source test plan for Agency approval within 60 days which contains the following information:
   (a) Source test data,
   (b) Sampling methods for measuring PM10, NOx, SO2 and CO,
   (c) Method of calculation of emissions.
5. Ball-Incon shall meet the following 1-hour average emission standards:
   (a) 0.5 lbs. of PM10 per ton of glass produced;
   (b) 3.8 lbs. of NOx per ton of glass produced;
   (c) 1.6 lbs. of SO2 per ton of glass produced.
6. Ball-Incon shall conduct a source test to measure the lb. per ton emission factors for PM10, NOx, SO2 and CO within 120 days of startup.

Fredrick L. Austin P.E.
FREDRICK L. AUSTIN P.E.
Reviewing Engineer

Jay M. Willenberg PE
JAY M. WILLENBERG PE
Reviewing Engineer

David D. Kuid
for ARTHUR DAVIDSON
Air Pollution Control Officer

MEJ

Form 50-118, (1/91)

Ball-InCon Glass Packaging Corp.
1509 South Macedonia Avenue, Muncie, IN 47302-3664 (317) 741-7000
Reply to: P.O. Box 4200, Muncie, IN 47307-4200

October 11, 1993

Mr. Fred L. Austin
Air Pollution Engineer
Puget Sound Air Pollution Control Agency
110 Union Street, Suite 500
Seattle, WA 98101-2038

RE: Ball-InCon Glass Packaging Corp.
Construction Permit Application
Seattle Furnace # 5 Oxy-Fuel

Dear Mr. Austin:

Enclosed you will find a completed application for a permit to construct a second Oxy-fuel furnace at our Seattle facility. This application includes the filing fee in the amount of $250.00. Ball-InCon plans to replace our existing end-port, regenerative furnace # 5 with an Oxy-Fuel furnace identical in size and capacity to our existing # 3 furnace. The melter will be enlarged from 440 to 660 sq. ft.; the electric boosting will be retained; and the combustion system will be converted to a more fuel efficient operation allowing for increased production with reduced pollutants to the atmosphere. The max. rated capacity of the furnace will increase from 135 to 205 tons per day.

We had planned to continue to operate furnace # 5 until December, however the furnace experienced a major glass leak on Oct. 1st. and the decision was made to curtail production rather than attempt repairs. The furnace is currently being dismantled and construction will be scheduled upon approval of this application. Startup is planned as originally scheduled for Feb. 1994.

If there are any questions or additional information is needed during your review process, I can be reached at 317-741-7116.

Sincerely:

John R. Mino
Senior Engineer, Environmental

Attachments.

Ball-Incon Glass Packaging Corp.
Seattle, Washington

Form S, Item 12
==========

C. Plans/Specifications

The existing Furnace # 5 which is a typical air-fuel, regenerative, end-port design was scheduled for a major rebuild in Feb. 1994. However on Oct. 1, 1993 a major glass leak in the furnace resulted in an early shutdown and the rebuild is now planned to occur as soon as permit approvals and equipment and materials can be obtained. Ball-InCon proposes to rebuild Furnace # 5 and improve it's efficiency by increasing the melter size and converting the combustion system to an oxy-fuel firing process. These changes and other related improvements increase efficiency by reducing capital and operating costs and as an added benefit improve the environmental performance of this furnace. Other related improvements in this rebuild will include larger forehearth channels; elimination of the regenerators and ports; and modern instrumentation for monitoring and controlling the oxy-fuel burners.The proposed furnace design is an exact duplicate of our existing oxy-fuel furnace # 3, which was installed in January 1993. The conversion of furnaces in the glass industry to this firing system has proven to be one of the most viable and cost effective alternatives available to improve energy efficiency with the added environmental benefit of significantly reduced glass melter Nitrogen Oxides (NOX) emissions.

Furnace Design Changes

* Convert the existing air-fuel regenerative firing to oxy-fuel firing.
* Increase the melter area from 440 sq. ft. to 660 sq. ft. by both increased length and width.
* Glass depth will now be 51".
* Eliminate the existing regenerators and ports.
* Construct an exhaust port and connect to existing Morgan Isley system.
* Existing electric boosting will be retained.
* Existing 26" forehearths will be changed to 36"

FORM S Item 12 e
==========

Description of The Glass Container Manufacturing Process

The major glass-making raw materials, consisting of sand, soda ash and limestone, along with lesser quantities of colorants and refining agents, are received by rail or truck and unloaded into storage silos until needed. Recycled glass, called cullet, from our own process (rejects) and purchased from recycling centers and other outside sources is also a major raw material. Batch materials in carefully weighed proportions are thoroughly mixed and conveyed to storage bins above the glass melting furnace. Mixed batch is continuously fed into one end of the glass melting furnace, which is essentially a refractory box constructed of special high-temperature resistant refractories, containing a bath of molten glass at a temperature of about 2500 F

Most of the energy for melting and refining the glass is supplied by natural gas-fired burners, with additional energy from electricity through electrodes immersed in the glass. Most of the gas-fired furnaces in the glass industry are of the regenerative type, (configured as end-port or side-port) in which combustion products are exhausted through one of two chambers containing refractory brick for reclamation of heat. The air used for combustion alternately passes through each of these chambers and into the furnace to be mixed with fuel for heating the furnace. Approximately every 20 minutes the process is reversed with the previously heated chamber now used to preheat combustion air and hot combustion products pass through the cooler side to again heat the refractory packing. Fuel flow and air/fuel ratio are controlled to maintain proper furnace temperatures and efficient combustion. Furnace exhaust gases then exhaust directly to the atmosphere.

Chemical reactions occur at these high temperatures over a period of several hours to form glass. The refining process (removal of trapped gases and bubbles) and homogenization of the glass takes place both during and after melting. Nearly bubble-free glass is continuously withdrawn from the other end of the furnace and flows through shallow refractory channels called forehearths to the forming machines where bottles and jars are made. The freshly formed containers are heat-treated to remove any stresses in the forming process, inspected, packed and shipped to our customers. This operation normally runs 24 hours a day, 7 days a week.

FORM S Item 12 e (continued)

Combustion Changes For Oxy-Fuel Firing

The conversion to Oxy-Fuel firing means that the furnace will be using oxygen rather than air in the burners. In order to do this all of the furnace ports along with both of the regenerators are no longer necessary. An exhaust port will be constructed at the rear wall of the melter and tied into the existing flue chamber for removal of the combustion products out through the Morgan Isley system. The heart of the combustion system is the burners which require that both fuel and oxygen flows be controlled evenly to ensure optimum combustion efficiency. Ball-Incon has chosen a burner developed by Combustion Tec who designed this burner not only for low NOX emissions but specifically for the high temperatures and corrosive atmosphere in glass melting. Combustion Tec calls these burners Cleanfire™ and this furnace will use eight (8) burners.

Ball-InCon Glass Packaging Corp.
Seattle Furnace # 5 Emission Calculations - Table 1

Year	Tonnage	PART. T/Yr	NOX T/Yr	SOx T/Yr
1988	41,629	26.85	129.04	70.76
1989	43,437	28.01	134.65	73.84
1990	43,308	27.93	134.25	73.63
1991	44,122	28.45	136.77	75.00
1992	45,726	29.49	141.75	77.73
1993	45,391	29.28	140.71	77.16
AVE	43,936	28.33	136.20	74.69
Projected estimate for Proposed Oxy-fuel Furnace				
1994	55,610	13.90	105.65	44.48
% Change	+27%	-50%	-22%	-40%

COMMENTS:

The emission factors used were:

	Years 1988-1993	OXY 1994
Particulate	1.29	0.5 lbs/ton
Nitrogen Oxides	6.2	3.8 lbs/ton
Sulfur Oxides	3.4	1.6 lbs/ton

Factors for the years 1988-1993 are from actual test results on this furnace and/or AP 42. The factor for particulates is the same factor which was used to calculate the emission cap for the Seattle facility. The Oxy-fuel estimates are from actual tests conducted on our Oxy-fuel furnace # 3 which is a duplicate of the proposed Furnace # 5. A copy of the summary of the results for the test conducted on Mar. 24, 1993 is attached to this permit request as Exhibit A.

Production data for 1993 was annualized for comparative purposes as production was curtailed on Oct 1, 1993.

RECEIVED

OCT 12 1993

PUGET SOUND AIR POLLUTION CONTROL AGENCY

PUGET SOUND AIR POLLUTION CONTROL AGENCY

ENGINEERING DIVISION
200 WEST MERCER, ROOM 205, SEATTLE, WASHINGTON 98119-3958
(206) 344-7334

Notice of Construction and Application for Approval

FORM P SIDE 1

Be sure to complete items 39, 40, 41, & 43 before submitting Form P.

(AGENCY USE ONLY)
DATE 10/12/93 N/C NUMBER 5193
REG. NO. 17656 VAR. NO.
SIC. NO. COS. NO.
GRID NO. UTM

1. TYPE OF BUILDING (Check)	2. STATUS OF EQUIPMENT (Check)	7. APPLICANT
☐ New ☒ Existing	☐ New ☐ Existing ☒ Altered ☐ Relocation	Ball-InCon Glass Packaging Corp.
3. COMPANY (OR OWNER) NAME		8. APPLICANT ADDRESS
Ball-InCon Glass Packaging Corp.		Ball-InCon Glass Packaging Corp.
4. COMPANY (OR OWNER) MAILING ADDRESS		9. INSTALLATION ADDRESS
1509 S. Macedonia, Muncie, IN 47302		5801 E. Marginal Way South Seattle 98134
5. NATURE OF BUSINESS		10. TYPE OF PROCESS
Glass Container Manufacturing		Glass Melting Furnace #5

EQUIPMENT (ENTER ONLY NEW EQUIPMENT OR CHANGES. ENTER NUMBER OF UNITS OF EQUIPMENT IN COLUMN 'NO. OF UNITS.' COMPLETE FORM 'S' FOR EACH ENTRY.)

11. NO. OF UNITS	SPACE HEATERS OR BOILERS (Complete Form S-A)	14. NO. OF UNITS	OVENS	15. NO. OF UNITS	MECHANICAL EQUIP.	16. NO. OF UNITS	MELTING FURNACES
(a)		(a)	CORE BAKING OVEN	(a)	AREAS	(a)	POT
12. NO. OF UNITS	INCINERATORS (Complete Form S-B)	(b)	PAINT BAKING	(b)	BULK CONVEYOR	(b)	REVERBERATORY
		(c)	PLASTIC CURING	(c)	CLASSIFIER	(c)	ELECTRIC INDUC/RESIST
(d)		(d)	LITHO COATING OVEN	(d)	STORAGE BIN	(d)	CRUCIBLE
13. NO. OF UNITS	OTHER SYSTEMS	(e)	DRYER	(e)	BAGGING	(e)	CUPOLA
		(f)	ROASTER	(f)	OUTSIDE BULK STORAGE	(f)	ELECTRIC ARC
(a)	DEGREASING, SOLVENT	(g)	KILN	(g)	LOADING OR UNLOADING	(g)	SWEAT
(b)	ABRASIVE BLASTING	(h)	HEAT-TREATING	(h)	BATCHING	(h)	OTHER METALLIC
(c)	OTHER — SYSTEM	(i)	OTHER	(i)	MIXER (SOLIDS)	(i) 1	GLASS
(d)		(j)		(j)	OTHER	(j)	OTHER NON METALLIC

17. NO. OF UNITS	GENERAL OPER. EQUIP.	17. NO. OF UNITS	GENERAL OPER. EQUIP.	17. NO. OF UNITS	GENERAL OPER. EQUIP.	18. NO. OF UNITS	OTHER EQUIPMENT
(a)	CHEMICAL MILLING	(f)	GALVANIZING	(k)	ASPHALT BLOWING	(a)	SPRAY PAINTING GUN
(b)	PLATING	(g)	IMPREGNATING	(l)	CHEMICAL COATING	(b)	SPRAY BOOTH OR ROOM
(c)	DIGESTER	(h)	MIXING OR FORMULATING	(m)	COFFEE ROASTER	(c)	FLOW COATING
(d)	DRY CLEANING	(i)	REACTOR	(n)	SAWS & PLANERS	(d)	FIBERGLASSING
(e)	FORMING OR MOLDING	(j)	STILL	(o)	STORAGE TANK	(e)	OTHER

CONTROL DEVICES (ENTER NUMBER OF UNITS OF EQUIPMENT IN SPACES IN COLUMNS. COMPLETE A FORM R FOR EACH ENTRY.)

19. NO. OF UNITS	CONTROL DEVICE	20. NO. OF UNITS	CONTROL DEVICE	21. NO. OF UNITS	CONTROL DEVICE	22. NO. OF UNITS	CONTROL DEVICE
(a)	SPRAY CURTAIN	(a)	AIR WASHER	(a)	ABSORBER	(a)	DEMISTER
(b)	CYCLONE	(b)	WET COLLECTOR	(b)	ADSORBER	(b)	BAGHOUSE
(c)	MULTIPLE CYCLONE	(c)	VENTURI SCRUBBER	(c)	FILTER PADS	(c)	ELEC. PRECIPITATOR
(d)	INERTIAL COLL. — OTHER	(d)		(d)	AFTERBURNER	(d)	OTHER

23. BASIC EQUIPMENT COST (Estimate)	24. CONTROL EQUIPMENT COST (Estimate)	25. DAILY HOURS	26. DAYS OF OPERATION (Circle)
$2,300,000		FROM 0000 AM to 23 59 PM	(S) (M) (T) (W) (T) (F) (S)
27. ESTIMATED STARTING DATE OF CONSTRUCTION:		28. ESTIMATED COMPLETION DATE OF CONSTRUCTION:	
December 1993		February 1994	

29. RAW MATERIALS (List starting material used in process) AND FUELS (Type and amount)	ANNUAL AMT. UNITS	30. PRODUCTS (List End Products)	ANNUAL PROD. TONS UNITS
(a) Natural Gas	116500 MGF	(a)	
(b) Sand	33300 TONS	(b) GLASS CONTAINERS	53800
(c) Soda Ash	10300 TONS	(c)	
(d) Limestone	8600 TONS	(d)	
(e) Salt Cake	42 TONS	(e)	
(f) Carbocite	49 TONS	(f)	
(g) Iron Chromite/Iron Pyrites	51 TONS	(g)	

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PUGET SOUND AIR POLLUTION CONTROL AGENCY

Notice of Construction Application | FORM P

STACKS OR VENTS (LIST NUMBER, TYPE, AND SIZE OF VENT)

31. NO. OF UNITS	DESCRIPTION OF OPENING	32. HEIGHT ABOVE GRADE (FT.)	33. VOLUME EXHAUSTED (ACFM)	DIMENSIONS (INCHES)	
				34. LENGTH (OR DIAM)	35. WIDTH
a)	STACKS	70	35,000	42" diam.	
b)	FLUES				
c)	PROCESS OR GENERAL EXHAUST				
d)	PROCESS OR GENERAL VENTS				
e)	SKYLIGHT OR WINDOW				
f)	EXHAUST HOOD				
g)	OTHER				

FLOW DIAGRAM

36. FLOW DIAGRAM INSTRUCTIONS:

(a) FLOW DIAGRAM MAY BE SCHEMATIC. ALL EQUIPMENT SHOULD BE SHOWN WITH EXISTING EQUIPMENT SO INDICATED.
(b) SHOW FLOW DIAGRAM OF PROCESS STARTING WITH RAW MATERIALS USED AND ENDING WITH FINISHED PRODUCT.
(c) IF MORE THAN ONE PROCESS IS INVOLVED TO MAKE FINISHED PRODUCT, SHOW EACH PROCESS AND WHERE THEY MERGE.
(d) INDICATE ALL POINTS IN PROCESS WHERE GASEOUS OR PARTICULATE POLLUTANTS ARE EMITTED.
(e) FLOW CHART CAN BE ATTACHED SEPARATELY IF NECESSARY. (DRAWINGS MAYBE SUBMITTED INSTEAD IF DESIRED).
(f) SHOW PICKUP AND DISCHARGE POINTS FOR HANDLING OR CONVEYING EQUIPMENT.

Information showing location on file from previous submittals

37. LIST OF ATTACHMENTS AND ACCOMPANYING DATA OR COMMENTS:

Form S
Tables 1, 4, & 21 Before and After Conversion
Plans & Specifications
Emission Calculations
Description of Glass Melting Process - Combustion Changes for Oxy-Fuel
Test Report #3 Furnace Mar 24, 1993
Environmental Checklist

38. CERTIFICATION:

I, THE UNDERSIGNED, DO HEREBY CERTIFY THAT THE INFORMATION CONTAINED IN THIS APPLICATION AND THE ACCOMPANYING FORMS, PLANS, AND SUPPLEMENTAL DATA DESCRIBED HEREIN IS, TO THE BEST OF MY KNOWLEDGE, ACCURATE AND COMPLETE.

39. SIGNATURE	40. DATE
John R. Mino	October 8, 1993

41. TYPE OR PRINT NAME	42. TITLE	43. PHONE
John R. Mino	Senior Engr., Environmental	(317) 741-7116

PUGET SOUND AIR POLLUTION CONTROL AGENCY

ENGINEERING DIVISION

200 WEST MERCER STREET • • SEATTLE, WASHINGTON 98109 • (206) 296-7334

Glass furnace modific

Notice of Construction and Application for Approval

*Note: Information required by Section 1a must be completed. for this form to be accepted for review.

FOR BASIC PROCESS EQUIPMENT

PLEASE CONSULT INSTRUCTION SHEET BEFORE FORWARDING

FORM S

DATE _____ N/C # _____

1	a. COMPLETE THE SECTIONS INDICATED ☒1 ☒2 ☐3 ☒4 ☒5 ☐6 ☐7 ☒8 ☐9 ☐10 ☐11 ☒12		b. COMPANY (OR OWNER) INSTALLATION ADDRESS: 5801 E. Marginal Way South	
	c. COMPANY (OR OWNER) NAME: Ball-InCon Glass Packaging Corp.		d. APPLICANT: Ball-InCon Glass Packaging Corp.	
	e. PREPARED BY: (Name and title): John R. Mino Senior Engr--Environmental		f. PREPARED BY: (Signature)	g. PHONE: (317) 741-7116
2	a. ◀ ~~PROCESS~~ EQUIPMENT DATA ▶	b. Title: Glass Melting Furn #5	c. Make and Model: Ball-InCon Design	d. Dimensions (LxWxH): 36' x 18' x 48" deptl
	e. No. of units; rated capacity: 1	f. 205 tons/day	g. Auxiliary Equipment: none	h. Connected To:
3	a. ◀ ▶	b.	c.	d.
	e.	f.	g. Equipment	h. Connected To:
4	a. ◀ BURNER DATA ▶	b. Type of Burner, Fuel: Cleanfire^{tm} - Gas	c. Make and Model: Combustion Tec	d. Rated Capacity: 2 - 8 MMBTU/Hour
	e. No. of units; ignition method: 8	f.	g. CFM Exhausted (Temperature): 1000-1250 CFM @ 1850°F	h. Connected To:
5	a. ◀ STACKS, VENTS AND EXHAUST OPENINGS ▶	b. Type of Vent: Stack	c. Dimensions: 42 inch	d. 75 ft high
	e. No. of vents; Material of construction: 1	f. Steel	g. CFM Exhausted (Temperature): 35,600 @ 350°F (°F)	h. Connected To:
6	TANKS AND KETTLES ▶	b. Type of Tank, Material	c. Dimensions (LxWxH) in inches	d. Surface Area (Sq. Ft.) ☐ Closed ☐ Open
	e. No. of tanks; Material of construction	f.	g. Auxiliary Equipment	h. Connected To:
7	a. ◀ FAN DATA ▶	b. Type of Fan (Designate Blade)	c. Make and Model	d. Motor Data RPM HP
	e. No. of fans; Material of construction	f.	g. CFM Exhausted (Temperature) (°F)	h. Connected To:
8	a. ◀ OVENS AND FURNACES	b. Type of Oven or Furnace: Cross fired oxy-fuel	c. Make and Model: Ball-InCon Design	d. Rated Capacity: 205 tons/day
	e. No. of ovens; Material of construction	f. High temp refractory	g. CFM Exhausted (Temperature) (°F)	h. Connected To:
9	a. ◀ OPERATIONAL DATA ▶	b. Type of Operation ☐ Batch ☒ Continuous	c. Operating Schedule (Normal) SHIFTS/DAY ☐1 ☐2 ☒3	d. Mode of Operations ☐ Manual ☐ Auto ☒ Semi-Auto
	e. Duration of Batch (Hrs/Batch)	f.	g. Daily Number of Batches: 66 (Ave) 71 (Max)	h.
10	a. ◀ CONVEYOR DATA ▶	b. Type of Conveyor (Pneumatic, Bolt)	c. Make and Model	d. Capacity
	e. Dimensions (LxWxH)	f.	g. No. of Pickups / No. of Discharge Pts	h. Connected To:
11	GAS FLOW	b. ACTUAL CFM	c. SCFM (Reg I Standard)	d. TEMPERATURE (°F) IN _____ OUT _____
	e. PRESSURE DROP	f. EFFICIENCY	g. INLET AND OUTLET POLLUTANT CONCENTRATIONS	h.
12	a. ADDITIONAL DATA	b. ☐ ATTACH BROCHURE	c. ☒ ATTACH PLANS/SPECS before & after	d. ☒ ATTACH EMISSION ESTIMATE (show calculations) before & after
	☒ SUBMIT NARRATIVE DESCRIPTION OF PROCESS before & after	f. ☐ SUBMIT SOURCE TEST DATA	g. ☐ SUBMIT MODELING DATA	h. ☒ ATTACH A SCHEDULE OF EQUIPMENT WITH MAKE, MODEL, CAPACITY
	i. ☐ Tables 1, 4, 21	j. ☒ Complete Tables 1, 4 & 21 before & after modifications	k. ☐	l. ☐

FORM 50-149-1 (6/83)

TABLE 1
EMISSION SOURCES

List all sources, including this application, of air contaminants on applicant's property. If applicant has submitted this information in an earlier emission inventory, it will not be necessary to duplicate the requested information. Instead, indicate that this page has been submitted and list only changes from the emission inventory and list new source data.

Furnace #5 before conversion to OXY-FUEL

ALL SOURCES

EMISSION POINT NUMBER from plot plan	LIST POLLUTANT EMISSIONS (CHEMICAL COMPOSITION) & WT. OF EACH	FLOW RATE OF EACH LISTED EMISSION lbs/hr	
		GASEOUS	PARTICULATE
No. 5	Particulate (TSP)		3.8
	Nitrogen Oxides	109.7	
	Sulfur Dioxides	3.7	
	Carbon Monoxide	0	

STACKS ONLY

EMISSION POINT NUMBER from plot plan	STACK HEIGHT ABOVE GROUND (ft.)	STACK INTERNAL DIAMETER AT EXIT (ft.)	TEMP. DEG. (F)	VELOCITY (FT/SEC)	MOIS. %
No. 5	70	3.5	600	62	6

ENCLOSE THE FOLLOWING INFORMATION:

1. **EMISSIONS OTHER THAN THROUGH STACKS (HORIZONTAL VENTS, ETC.)**
2. **STACK'S HEIGHT ABOVE SUPPORTING OR ADJACENT STRUCTURES.**
3. **DIMENSIONS OF NON-CIRCULAR STACKS.**
4. **RESULTS OF TESTS INDICATING AVERAGE PARTICLE SIZE, DENSITY, ETC.**

TABLE 1
EMISSION SOURCES

List all sources, including this application, of air contaminants on applicant's property. If applicant has submitted this information in an earlier emission inventory, it will not be necessary to duplicate the requested information. Instead, indicate that this page has been submitted and list only changes from the emission inventory and list new source data.

"Changes Only" Oxy-fuel furnace #5

ALL SOURCES

EMISSION POINT NUMBER from plot plan	LIST POLLUTANT EMISSIONS (CHEMICAL COMPOSITION) & WT. OF EACH	FLOW RATE OF EACH LISTED EMISSION lbs/hr	
		GASEOUS	PARTICULATE
No. 5	Particulate (tsp)		2.9
	Nitrogen oxides	16.5	
	Sulfur Dioxides	3.1	
	Carbon Monoxide	0.0	

STACKS ONLY

EMISSION POINT NUMBER from plot plan	STACK HEIGHT ABOVE GROUND (ft.)	STACK INTERNAL DIAMETER AT EXIT (ft.)	TEMP. DEG. (F)	VELOCITY (FT/SEC)	MOIS. %
No. 5	70	3.5	325	50	5

ENCLOSE THE FOLLOWING INFORMATION:

1. **EMISSIONS OTHER THAN THROUGH STACKS (HORIZONTAL VENTS, ETC.)**
2. **STACK'S HEIGHT ABOVE SUPPORTING OR ADJACENT STRUCTURES.**
3. **DIMENSIONS OF NON-CIRCULAR STACKS.**
4. **RESULTS OF TESTS INDICATING AVERAGE PARTICLE SIZE, DENSITY, ETC.**

Table 4
COMBUSTION UNITS

Before Conversion

Please note: BACT for new boilers/ heaters ≥10 MMBH is:
0.10 lb NOx/MMBTU for gas
0.20 lb NOx/MMBTU for #2 oil
0.30 lb NOx/MMBTU for other fuel
and for ≥100 MMBH is: 10 ppm w/CEM

OPERATIONAL DATA

Number from flow diagram: Furnace #5 Model Number (if available): N. A.

Name of device: End Port Regenerative Furnace Manufacturer: Ball-InCon

Design heat input rating: N.A. Btu/hour each Number of units: N.A.

CHARACTERISTICS OF INPUT

	Type	Grade or Spec.	% Sulfur	Annual Consumption	Units	Rated Hourly Consumption
Fuel	Oil				(gal)	
	Gas	Natural	---	N.A.	(therm)	21000 CFH
	Wood				(ton)	
	Other				( )	

Gross Heating Value of Waste Material (wet basis if applicable)	Btu/lb	Air Supplied for Waste Material:	Minimum SCFM (70°F & 14.7 psia)	Maximum SCFM (70°F & 14.7 psia)

Waste Material or Contaminated Gas	Total Flow Rate (lb/hr) Minimum Expected	Total Flow Rate (lb/hr) Design Maximum	Inlet Temperature (°F) Minimum Expected	Inlet Temperature (°F) Design Maximum

		Chemical Composition			
		Material	Min. Value Expected lb/hr	Avg. Value Expected ~~lb/hr~~	Design Maximum ~~lb/hr~~
Fuel	1.	Natural Gas		19,700 CFH	27,000 CFH
~~Waste Material*~~	2.				
	3.				
	4.				
	5.				

Gross Heating Value of Fuel:	Btu/lb	Air Supplied for Fuel:	Minimum SCFM (70°F & 14.7 psia)	Maximum SCFM (70°F & 14.7 psia)
	1034		3600	4900

*Describe how waste material is introduced into combustion unit on an attached sheet. Supply drawings, dimensioned and to scale to show clearly the design and operation of the unit.

(over)

Table 4
(continued)

COMBUSTION UNITS

Furnace #5 Before Conversion

CHARACTERISTICS OF OUTPUT

	Chemical Composition			
	Material	Min. Value Expected lb/hr	Avg. Value Expected lb/hr	Design Maximum lb/hr
Flue Gas Released	1.			
	2.			
	3.			
	4.			
	5.			

Temperature at Stack Exit °F	Total Flow Rate (lb/hr) Minimum Expected	Total Flow Rate (lb/hr) Maximum Expected	Velocity at Stack Exit (ft/sec) Minimum Expected	Velocity at Stack Exit (ft/sec) Maximum Expected
600	12000 DSCFM	20000 DSCFM	50	60

COMBUSTION UNIT CHARACTERISTICS

Chamber Volume from Drawing ft^3	Chamber Velocity at Average Chamber Temperature ft/sec	Average Chamber Temperature °F
2000	12	2680
Average Residence Time sec	**Exhaust Stack Height ft**	**Exhaust Stack Diameter ft**
4.5	70	3.5

ADDITIONAL INFORMATION FOR CATALYTIC COMBUSTION UNITS

Number and Type of Catalyst Elements	Catalytic Bed Velocity ft/sec	Max. Flow Rate per Catalytic Unit (Manufacturer's Specifications) Specify Units

Attach separate sheets as necessary providing a description of the combustion unit, including details regarding principle of operation and the basis for calculating its efficiency. Supply an assembly drawing, dimensioned and to scale, to show clearly the de nd operation of the equipment. If the device has bypasses, safety valves, etc., specify when such bypasses are to be used a er what conditions. Submit explanations on controls for temperature, air flow rates, fuel rates, and other operating variables.

Table 4
COMBUSTION UNITS

Please note: BACT for new boilers/ heaters ≥10 MMBH is:
0.10 lb NOx/MMBTU for gas
0.20 lb NOx/MMBTU for #2 oil
0.30 lb NOx/MMBTU for other fuel
and for ≥100 MMBH is: 10 ppm w/CEM

OPERATIONAL DATA

Number from flow diagram: Furnace #5 | Model Number (if available): N. A.

Name of device: Oxy-fuel furnace #5 | Manufacturer: Ball-InCon

Design heat input rating: 2-8 mm Btu/hour each | Number of units: 8

CHARACTERISTICS OF INPUT

	Type	Grade or Spec.	% Sulfur	Annual Consumption	Units	Rated Hourly Consumption
Fuel	Oil				(gal)	
	Gas	Natural	---		(therm)	25M SCFH
	Wood				(ton)	
	Other				( )	

Gross Heating Value of Waste Material (wet basis if applicable)	Btu/lb _____	Air Supplied for Waste Material:	Minimum SCFM (70°F & 14.7 psia) _____ / Maximum SCFM (70°F & 14.7 psia) _____

Waste Material or Contaminated Gas	Total Flow Rate (lb/hr) Minimum Expected	Total Flow Rate (lb/hr) Design Maximum	Inlet Temperature (°F) Minimum Expected	Inlet Temperature (°F) Design Maximum

Chemical Composition

Waste Material*	Material	Min. Value Expected lb/hr	Avg. Value Expected lb/hr	Design Maximum lb/hr
	1.			
	2.			
	3.			
	4.			
	5.			

Gross Heating Value of Fuel:	Btu/lb 1034	Oxygen ~~Air~~ Supplied for Fuel:	Minimum SCFM (70°F & 14.7 psia) 650 / Maximum SCFM (70°F & 14.7 psia) 850

*Describe how waste material is introduced into combustion unit on an attached sheet. Supply drawings, dimensioned and to scale to show clearly the design and operation of the unit.

(over)

Table 4
(continued)

COMBUSTION UNITS

CHARACTERISTICS OF OUTPUT

	Chemical Composition			
	Material	Min. Value Expected lb/hr	Avg. Value Expected lb/hr	Design Maximum lb/hr
Flue Gas Released	1.			
	2.			
	3.			
	4.			
	5.			

Temperature at Stack Exit °F	Total Flow Rate (lb/hr) Minimum Expected	Total Flow Rate (lb/hr) Maximum Expected	Velocity at Stack Exit (ft/sec) Minimum Expected	Velocity at Stack Exit (ft/sec) Maximum Expected
300 - 400	3.0	4.0	40	60

COMBUSTION UNIT CHARACTERISTICS

Chamber Volume from Drawing ft^3	Chamber Velocity at Average Chamber Temperature ft/sec	Average Chamber Temperature °F
Undetermined	Undetermined	2650 - 2760
Average Residence Time sec	**Exhaust Stack Height ft**	**Exhaust Stack Diameter ft**
Undetermined	75	3.5

ADDITIONAL INFORMATION FOR CATALYTIC COMBUSTION UNITS

Number and Type of Catalyst Elements	Catalytic Bed Velocity ft/sec	Max. Flow Rate per Catalytic Unit (Manufacturer's Specifications) Specify Units

Attach separate sheets as necessary providing a description of the combustion unit, including details regarding principle of operation and the basis for calculating its efficiency. Supply an assembly drawing, dimensioned and to scale, to show clearly the and operation of the equipment. If the device has bypasses, safety valves, etc., specify when such bypasses are to be used nder what conditions. Submit explanations on controls for temperature, air flow rates, fuel rates, and other operating variables.

TABLE 21

Before Conversion

FURNACE DATA SHEET

Point Number (from flow diagram) Furnace #5	Furnace Type	
ace Manufacturer Ball-InCon	____ Electric	____ Arc
Model Number Regenerative End Port with Electric Boost	____ Reverberatory	____ Channel
Size (dimensions) 27.5' x 16' x 34"	____ Crucible	____ Coreless
	____ Pot	____
	____ Annealing or HT	____ Cupola
	____ Reheat	____ Retort
	____ Blast	__X__ Other

FURNACE OPERATION

Metal Type Melted Glass	Type of Heat Additives
Melting Capacity (tons/hr) 5.63	Quantity of Heat Additives
Holding Capacity (tons) 94	Pouring Temperature (°F) 2100
Charge Makeup Sand, soda ash, limestone, fining agents, colorants	Afterburner (Btu/hr)
	Ductile Iron Production (tons/hr)
ging Method	Method Temperature Control
Oxygen Injection	Tuyere Air (SCFM*)

CHARACTERISTICS OF FUEL INPUT

Fuel Type	Chemical Composition (% by weight)	Inlet Air Temp (°F)	Fuel Flow Rate (SCFM* or lbs/hr)	
Natural Gas	N.A.	Ambient	Average 328 SCFM	Design Max 450 SCFM

Total Air Supplied (SCFM*)	Gross Heating Value of Fuel (specify units)
3600	1034 BTU/Ft^3

CHARACTERISTICS OF STACK OUTPUT

Material Emitted	Chemical Composition and Rate of Release
Particulate Matter	95% Sodium Sulfate 5% Calcium Sulfate / 2.3 lbs/hr

STACK PARAMETERS

ck Diameter	Stack Height	Temp (°F)	Velocity	Moisture %
42 inch	70	600	65	5 - 10 %

Supply assembly drawing, dimensions, and to-scale, in as many sections as needed to clearly show the operation of the furnace.

*STANDARD CONDITIONS: 70°F, 14.7 PSIA.

TABLE 21

FURNACE DATA SHEET

Point Number (from flow diagram) Furnace # 5	Furnace Type	
Furnace Manufacturer Ball-Incon Design	____ Electric	____ Arc
Model Number N. A.	____ Reverberatory	____ Channel
Size (dimensions) Melter 18' x 36'10" 660 ft^2 51" Glass depth	____ Crucible	____ Coreless
	____ Pot	____
	____ Annealing or HT	____ Cupola
	____ Reheat	____ Retort
	____ Blast Oxy-fuel	X Other

FURNACE OPERATION

Metal Type Melted Glass Melter	Type of Heat Additives
Melting Capacity (tons/hr) 8.5	Quantity of Heat Additives
Holding Capacity (tons) 207	Pouring Temperature (°F)
Charge Makeup Sand, soda ash, limestone, fining agents, colorants	Afterburner (Btu/hr)
	Ductile Iron Production (tons/hr)
Charging Method Demand	Method Temperature Control
Oxygen Injection N. A.	Tuyere Air (SCFM*)

CHARACTERISTICS OF FUEL INPUT

Fuel Type	Chemical Composition (% by weight)	Inlet Air Temp (°F)	Fuel Flow Rate (SCFM* or lbs/hr)	
Natural Gas	N. A.	50	Average 165 SCFM	Design Max 420 SCFM
		Total Air Supplied (SCFM*)	Gross Heating Value of Fuel (specify units)	
		None	1034 BTU/Ft^3	

CHARACTERISTICS OF STACK OUTPUT

Material Emitted	Chemical Composition and Rate of Release
Particulates	Sodium Sulfates 95% Calcium Sulfates 5% 3-4 lbs/hr

STACK PARAMETERS

Stack Diameter	Stack Height	Temp (°F)	Velocity	Moisture %
42 in.	75	300-400	60	5 - 10

Supply assembly drawing, dimensions, and to-scale, in as many sections as needed to clearly show the operation of the furnace.

*STANDARD CONDITIONS: 70°F, 14.7 PSIA.

AMTEST
AIR QUALITY, INC.

AmTest-Air Quality, Inc.
30545 S.E. 84th St., #5
Preston, WA 98050
Office: (206) 222-7746
FAX: (206) 222-7849

SOURCE

EMISSION

EVALUATION

APRIL 30, 1993

Prepared For:

BALL-INCON GLASS PACKAGING CORP.
SEATTLE PLANT
OXYFUEL FURNACE
METHOD 5, 6C, 7E AND 10 TESTING
SEATTLE, WASHINGTON
MARCH 24, 1993

Submitted by:

Kris A. Hansen
Project Manager

James A. Guenthoer
Sr. Project Engineer

Kevin P. Orton
Sr. Air Quality Specialist

Angela F. Blaisdell
Sr. Technical Writer

Am Test-Air Quality, Inc.
Preston, Washington

We certify that the information contained herein is accurate and complete to the best of our knowledge.

2.0

SUMMARY OF RESULTS

2.1 EPA Method 5 - Particulate Matter

The results of the three (3) 120-minute (2-hour) Method 5 tests for quantifying particulate matter emissions performed at the Oxyfuel Furnace stack on March 24, 1993 are summarized in Table 2.1 below, and on page 5 in a computer printout titled "Summary of Results - Methods 1, 2, 3A, 4, and 5". Oxygen (O_2) and carbon dioxide (CO_2) data were obtained from six (6) 1-hour Method 3A tests. The results of concurrent gas measurements were averaged for use with the Method 5 data.

Table 2.1. Summary of particulate matter emission test results from samples collected on March 24, 1993 at the Oxyfuel Furnace at Ball-InCon Glass Packaging in Seattle, Washington.

Run #	Front-Half Partic. Matter (gr/dscf)	Back-Half Partic. Matter (gr/dscf)	Total Partic. Matter (gr/dscf)	Dilution Corrected Partic. Matter (gr/dscf)	Total PM Emiss. Rate (lb/hr)
Oxyfuel Furnace					
Run 1	0.019	0.001	0.020	0.045	3.95
Run 2	0.016	0.001	0.017	0.038	3.46
Run 3	0.016	0.001	0.017	0.040	3.41
Average	0.017	0.001	0.018	0.041	3.61

The front-half, back-half, total and dilution corrected particulate matter emission concentrations in Table 2.1 are presented in units of grains per dry standard cubic foot (gr/dscf). The total particulate matter mass emission rate is presented in pounds per hour (lb/hr). An acceptable leak check of less than 0.02 cfm at the highest vacuum rate (or greater) used during the test preceded and followed each run. The average percentage isokinetics for each run were within the acceptable

limits of 100 $\pm$ 10%. Computer printouts of the results from the individual Method 5 tests are included in Appendix A of this report. Appendix B of this report contains example calculations of the results, along with copies of original field data sheets.

AMTEST
AIR QUALITY, INC.

SUMMARY OF RESULTS - METHODS 1, 2, 3A, 4 AND 5
AM TEST-AIR QUALITY, INC.

FILE NAME: 192B\BIM5SUM
CLIENT: BALL-INCON, INC.
LOCATION: SEATTLE, WASHINGTON

	OXYFUEL FURNACE STACK			
	RUN #1	RUN #2	RUN #3	AVERAGE
LAB #:	3736	3737	3738	
DATE:	3/24/93	3/24/93	3/24/93	
START TIME:	09:06	12:13	14:41	
STOP TIME:	11:06	14:13	16:41	
SAMPLE LENGTH (minutes):	120.0	120.0	120.0	
VOLUME SAMPLED (cubic feet):	75.879	75.955	75.600	75.811
VOLUME SAMPLED (dry std. cubic feet):	77.911	76.600	75.666	76.726
VOLUME SAMPLED (dry std. cubic meters):	2.206	2.169	2.143	2.173
STACK GAS MOISTURE (percent):	5.24	3.65	4.78	4.56
BAROMETRIC PRESSURE (inches of Hg):	29.91	29.94	30.06	29.97
STATIC PRESSURE (inches of H2O):	-0.55	-0.57	-0.54	-0.55
STACK PRESSURE (inches of Hg):	29.87	29.90	30.02	29.93
STACK GAS TEMPERATURE (degrees F.):	319.5	316.6	304.3	313.5
STACK GAS TEMPERATURE (degrees R.):	779.5	776.6	764.3	773.5
CARBON DIOXIDE (percent):	3.5	3.4	3.1	3.3
OXYGEN (percent):	20.1	20.1	20.2	20.1
CARBON MONOXIDE (ppm):	0	0	1	0
MOLECULAR WEIGHT (dry, lb/lb-mole):	29.36	29.35	29.30	29.34
MOLECULAR WEIGHT (wet, lb/lb-mole):	28.77	28.93	28.76	28.82
AVERAGE VELOCITY HEAD (inches of H2O):	0.469	0.479	0.446	0.465
PITOT TUBE Cp:	0.84	0.84	0.84	
STACK GAS VELOCITY (feet per second):	46.9	47.1	45.1	46.4
STACK DIAMETER (inches):	48.5	48.5	48.5	
STACK AREA (square feet):	12.8	12.8	12.8	
STACK GAS AIRFLOW (dry std. cubic feet per min.):	23109.2	23716.8	22933.3	23253.1
STACK GAS AIRFLOW (actual cubic feet per min.):	36064.6	36233.9	34747.2	35681.9
NOZZLE DIAMETER (inches):	0.254	0.254	0.254	
ISOKINETICS (percent):	102	98	100	
FRONT-HALF PARTICULATE EMISSION CONC. (gr/dscf):	0.019	0.016	0.016	0.017
BACK-HALF PARTICULATE EMISSION CONC. (gr/dscf):	0.001	0.001	0.001	0.001
TOTAL PARTICULATE EMISSION CONC. (gr/dscf):	0.020	0.017	0.017	0.018
TOTAL PARTICULATE EMISSION CONC. @ 7% O2 (gr/dscf):	0.347	0.296	0.345	0.329
TOTAL PARTICULATE EMISSION CONC. (mg/dscm):	45.7	39.0	39.7	41.5
TOTAL PARTICULATE MATTER EMISSION RATE (lb/hr):	3.95	3.46	3.41	3.61
TOTAL PART. EMISS. CONC. DILUTION CORR. (gr/dscf):	0.045	0.038	0.040	0.041

2.2 EPA Method 6C, 7E and 10 - Sulfur Dioxide, Nitrogen Oxides and Carbon Monoxide

Sulfur dioxide (SO_2), nitrogen oxides (NO_x) and carbon monoxide (CO) data were recorded at 1-minute intervals during six (6) 60-minute sample periods concurrent with the Method 1-5 tests on March 24, 1993 at the Oxyfuel Furnace stack using instrumental analyzers. These data were averaged, and the average values were bias-corrected for calibration drift during each test. The SO_2, NO_x and CO results from samples collected at the stack are presented on a computer printout titled "Summary of Results - Methods 6C, 7E and 10" on page 7 in emission concentration units of parts per million (ppm) and in emission rate units of pounds per hour (lb/hr). Copies of the bias-corrected results for each Method 3A, 6C, 7E and 10 test at the stack are included in Appendix A of this report in printouts titled "Calibration Summary - Gaseous Emission Monitors". Example calculations of the for SO_2, NO_x and CO emission rates are included in Appendix C of this report. The individual 1-minute readings are included in Appendix B of this report along with the calibration drift bias checks.

AMTEST
AIR QUALITY, INC.

SUMMARY OF RESULTS - METHODS 6C, 7E AND 10
AM TEST-AIR QUALITY, INC.

FILE NAME: 1978\BIF3GSUM
CLIENT: BALL-INCON, INC.
LOCATION: SEATTLE, WASHINGTON

	OXYFUEL FURNACE STACK						
	RUN #1	RUN #2	RUN #3	RUN #4	RUN #5	RUN #6	AVERAGE
DATE:	3/24/93	3/24/93	3/24/93	3/24/93	3/24/93	3/24/93	
START TIME:	09:15	10:33	11:47	13:12	14:30	15:45	
STOP TIME:	10:15	11:33	12:47	14:12	15:30	16:45	
SAMPLE LENGTH (minutes):	60.0	60.0	60.0	60.0	60.0	60.0	
AIRFLOW (dry std. cubic feet per min.):	23109.2	23109.2	23716.8	23716.8	22933.3	22933.3	23253.1
METHOD 6C - SULFUR DIOXIDE (SO2)							
SULFUR DIOXIDE EMISSION CONCENTRATION (ppm):	71.2	68.4	58.1	37.9	30.7	35.0	50.2
SO2 EMISSION RATE (lb/hr):	16.4	15.7	13.7	9.0	7.0	8.0	11.6
METHOD 7E - NITROGEN OXIDES (NOx)							
NITROGEN OXIDES EMISSION CONCENTRATION (ppm):	231.0	229.4	186.2	118.6	115.5	108.0	164.8
NOx EMISSION RATE (lb/hr):	38.2	38.0	31.6	20.2	19.0	17.7	27.5
METHOD 10 - CARBON MONOXIDE (CO)							
CARBON MONOXIDE EMISSION CONCENTRATION (ppm):	0	0	0	1	1	0	0
CARBON MONOXIDE EMISSION RATE (lb/hr):	0	0	0	0	0	0	0

PUGET SOUND AIR POLLUTION CONTROL AGENCY
200 West Mercer Street, Room 205
Seattle, Washington 98119

ENVIRONMENTAL CHECKLIST

WAIT - You may not need to fill out the attached checklist.
Please read and check the following:

Because of the State Environmental Policy Act, the action for which you are filing a Notice of Construction and Application for Approval to this Agency requires the completion of an environmental checklist.

BUT: If you can answer "yes" to either of the following questions with respect to the action being proposed, the attached checklist need not be completed:

1. I have obtained a State, City or County Permit and filled out an environmental checklist.

   [ ] Yes [X] No

   If you answered "yes", give State, City or County Department and date, and attach a copy of the checklist.

   _____

2. An environmental checklist or assessment has previously been filled out for another agency.

   [ ] Yes [X] No

   If "yes", give agency and date, and attach a copy of the checklist.

   _____

If your answer to both of the above questions was "no", you must fill out the attached environmental checklist.

Prepared by:


(Signature)

John R. Mino
(Print Name)

Senior Engineer, Environmental
(Title)

FORM NO. 50-150

Puget Sound Air Pollution Control Agency

200 West Mercer Street, Room 205
Seattle, Washington 98119-3958
Telephone: (206) 296-7330
1-800-552-3565
Facsimile: (206) 296-7431

Date: October 4, 1993

Proponent: Ball-InCon Glass Packaging Corp.

Project, Brief Title: Furnace #5 Oxy-fuel

ENVIRONMENTAL CHECKLIST

Purpose of Checklist:

The State Environmental Policy Act (SEPA), Chapter 43.21C RCW, requires all governmental agencies to consider the environmental impacts of a proposal before making decisions. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. The purpose of this checklist is to provide information to help you and the agency identify impacts from your proposal (and to reduce or avoid impacts from the proposal, if it can be done) and to help the agency decide whether an EIS is required.

Instructions for Applicants:

This environmental checklist asks you to describe some basic information about your proposal. Governmental agencies use this checklist to determine whether the environmental impacts of your proposal are significant, requiring preparation of an EIS. Answer the questions briefly, with the most precise information known, or give the best description you can.

You must answer each question accurately and carefully, to the best of your knowledge. In most cases, you should be able to answer the questions from your own observations or project plans without the need to hire experts. If you really do not know the answer, or if a question does not apply to your proposal, write "do not know" or "does not apply". Complete answers to the questions now may avoid unnecessary delays later.

Some questions ask about governmental regulations, such as zoning, shoreline, and landmark designations. Answer these questions if you can. If you have problems, the governmental agencies can assist you.

The checklist questions apply to all parts of your proposal, even if you plan to do them over a period of time or on different parcels of land. Attach any additional information that will help describe your proposal or its environmental effects. The agency may ask you to explain your answers or provide additional information reasonably related to determining if there may be significant adverse impact.

Use of checklist for nonproject proposals:

Complete this checklist for nonproject proposals, even though questions may be answered "does not apply." IN ADDITION, complete the SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS (part D).

For nonproject actions, the references in the checklist to the words "project," "applicant," and "property or site" should be read as "proposal," "proposer," and "affected geographic areas," respectively.

TO BE COMPLETED BY THE APPLICANT

A. BACKGROUND

1. Name of proposed project, if applicable:

   Furnace #5 Conversion from regenerative firing to oxygen fuel firing

2. Name of applicant: Ball-InCon Glass Packaging Corp.

3. Address and phone number of applicant and contact person:

   Name: John R. Mino Title: Senior Engineer, Environmental

   Firm: Ball-InCon Glass Packaging Corp. Telephone: 317/741-7116

   PO Box/Street: P.O. Box 4200

   City/State/Zip: Muncie, IN 47307

4. Date checklist prepared: October 4, 1993

5. Agency requesting checklist: PSAPCA

6. Proposed timing or schedule (including phasing, if applicable):

   Furnace dismantling October - December, 1993
   Rebuild of revised furnace December - January, 1994
   Startup February, 1994

7. Do you have any plans for future additions, expansion, or further activity related to or connected with this proposal? If yes, explain.

   No

8. **List any environmental information you know about that has been prepared, or will be prepared, directly related to this proposal.**

A separate environmental checklist has been prepared and issued for the related USA oxygen plant which will supply oxygen for the oxy-fuel furnace.

9. **Do you know whether applications are pending for governmental approvals of other proposals directly affecting the property covered by your proposal? If yes, explain.**

The oxy-fuel furnace will require a source of oxygen. A separate construction and shore-line permit has been requested from the Seattle Department of Construction and Land Use.

10. **List any government approvals or permits that will be needed for your proposal, if known.**

None

11. **Give brief, complete description of your proposal, including the proposed uses and the size of the project and site. There are several questions later in this checklist that ask you to describe certain aspects of your proposal. You do not need to repeat those answers on this page.**

The rebuild of #5 furnace will have the following improvements:

a) Conversion to oxy-fuel firing from regenerative firing

b) Melter size will be increased in length and width and the melter area will change from 440 square feet to 660 square feet.

c) Addition of an extra oxygen storage tank - 52,000 gallons

d) Existing air fuel burners will be replaced by oxy-fuel burners.

e) Provisions will be made for a new large cryogenic oxygen plant to supply the plant's increased oxygen needs.

f) Electric boosting will be cleaned, repaired and revised as needed.

12. Location of the proposal. Give sufficient information for a person to understand the precise location of your proposed project, including a street address, if any, and section, township, and range, if known. If a proposal would occur over a range of area, provide the range or boundaries of the site(s). Provide a legal description, site plan, vicinity map, and topographic map, if reasonably available. While you should submit any plans required by the agency, you are not required to duplicate maps or detailed plans submitted with any permit applications related to this checklist.

Ball-InCon Glass Packaging Corp.
5801 East Marginal Way South
Seattle, Washington

Plot plan for facility on file with PSAPCA.

B. ENVIRONMENTAL ELEMENTS

1. Earth

a. General description of the site (circle one): (Flat), rolling, hilly, steep slopes, mountainous, other: Flat - Zoned industrial.

b. What is the steepest slope on the site (approximate percent slope)? Unknown

c. What general types of soils are found on the site (for example, clay, sand, gravel, peat, muck)? If you know the classification of agricultural soils, specify them and note any prime farmland.

Unknown

d. Are there surface indications or history of unstable soils in the immediate vicinity? If so, describe.

No

e. Describe the purpose, type, and approximate quantities of any filling or grading proposed. Indicate source of fill.

No grading or filling proposed for the furnace rebuild.

f. Could erosion occur as a result of clearing, construction or use? If so, generally describe.

Does not apply.

g. About what percent of the site will be covered with impervious surfaces after project construction (for example, asphalt or buildings)?

Does not apply.

h. **Proposed measures to reduce or control erosion, or other impacts to the earth, if any:**

Does not apply.

2. Air

a. **What types of emissions to the air would result from the proposal (i.e., dust, automobile, odors, industrial, wood smoke) during construction and when the project is completed? If any, generally describe and give approximate quantities if known.**

No significant or unusual emissions are expected to occur during construction. When construction is completed, visible emissions from operating stack should remain unchanged from current operations.

b. **Are there any off-site sources of emissions or odor that may affect your proposal? If so, generally describe.**

No

c. **Proposed measures to reduce or control emissions or other impacts to air, if any:**

Nitrogen Oxides (NO_X) from #5 furnace stack are expected to be reduced by approximately 85% from current inventory levels.

3. **Water**

a. **Surface:**

1) **Is there any surface water body on or in the immediate vicinity of the site (including year-round and seasonal streams, saltwater, lakes, ponds, wetlands)? If yes, describe type and provide names. If appropriate, state what stream or river it flows into.**

Rear edge of plant property borders the DuWanish River.

2) **Will the project require any work over, in, or adjacent to (within 200 feet) the described waters? If yes, please describe and attach available plans.**

Not directly related to the rebuild of the furnace. However, the oxygen supply plant for this furnace is currently in operation and is located within 200 feet of the shoreline. Separate permits have been requested from the Seattle Department of Construction and Land Use.

3) **Estimate the amount of fill and dredge material that would be placed in or removed from surface water or wetlands and indicate the area of the site that would be affected. Indicate the source of fill material.**

Does not apply to this project but is covered in the permit request noted above.

4) Will the proposal require surface water withdrawals or diversions? Give general description, purpose, and approximate quantities if known.

No

5) Does the proposal lie within a 100-year floodplain? If so, note location on the site plan.

Unknown

6) Does the proposal involve any discharges of waste materials to surface waters? If so, describe the type of waste and anticipated volume of discharge.

No

b. Ground:

1) Will ground water be withdrawn, or will water be discharged to ground water? Give general description, purpose and approximate quantities if known.

No

2) Describe waste material that will be discharged into the ground from septic tanks or other sources, if any (for example: domestic sewage; industrial, containing the following chemicals...; agricultural; etc.). Describe the general size of the systems, the number of such systems, the number of houses to be served (if applicable), or the number of animals or humans the system(s) are expected to serve.

None

c. Water Runoff (including storm water):

1) Describe the source of runoff (including storm water) and method of collection and disposal, if any (include quantities, if known). Where will this water flow? Will this water flow into other waters? If so, describe.

Proposed project will not alter existing conditions at this site.

2) Could waste material enter ground or surface waters? If so, generally describe.

Current proposed project will not alter existing conditions at this site.

d. Proposed measures to reduce or control surface, ground, and runoff water impacts, if any:

None

4. Plants Industrial site - no major vegetation on site.

a. Check or circle types of vegetation found on the site:

___ deciduous tree: alder, maple, aspen, other
___ evergreen tree: fir, cedar, pine, other
___ shrubs
___ grass
___ pasture
___ crop or grain
___ wet soil plants: cattail, buttercup, bullrush, skunk cabbage, other
___ water plants: water lily, eelgrass, milfoil, other
___ other types of vegetation

b. What kind and amount of vegetation will be removed or altered?

None

c. List threatened or endangered species known to be on or near the site.

Unaware of any endangered species located at this site.

d. Proposed landscaping, use of native plants, or other measures to preserve or enhance vegetation on the site, if any:

No new landscaping is being proposed.

5. Animals

a. Circle any birds and animals which have been observed on or near the site or are known to be on or near the site: Existing industrial site will remain virtually the same following completion of this project.
Birds: hawk, heron, eagle, songbirds, other:

_____

Mammals: deer, bear, elk, beaver, other:

_____

Fish: bass, salmon, trout, herring, shellfish, other:

_____

b. List any threatened or endangered species known to be on or near the site.

Unaware of any threatened or endangered species at this site.

c. Is the site part of a migration route? If so, explain.

Unknown

d. Proposed measures to preserve or enhance wildlife, if any:

Does not apply.

6. Energy and Natural Resources

a. What kinds of energy (electric, natural gas, oil, wood stove, solar) will be used to meet the completed project's energy needs? Describe whether it will be used for heating, manufacturing, etc.

Existing sources of natural gas pipe lines will be used and new oxygen lines will be added for this furnace.

b. Would your project affect the potential use of solar energy by adjacent properties? If so, generally describe.

No

c. What kinds of energy conservation features are included in the plans of this proposal? List other proposed measures to reduce or control energy impacts, if any:

The conversion from regenerative firing to oxy-fuel firing should result in significant natural gas savings by reducing heat losses associated with the existing regenerative furnace.

7. Environmental Health

a. Are there any environmental health hazards, including exposure to toxic chemicals, risk of fire and explosion, spill, or hazardous waste, that could occur as a result of this proposal? If so, describe.

The related liquid oxygen facility will be installed to meet all current safety requirements.

1) Describe special emergency services that might be required.

None

2) Proposed measures to reduce or control environmental health hazards, if any:

None

b. Noise

1) What types of noise exist in the area which may affect your project (for example: traffic, equipment, operation, other)?

Industrial site will remain essentially unchanged upon completion of this project.

2) What types and levels of noise would be created by or associated with the project on a short-term or a long-term basis (for example: traffic, construction, operation, other)? Indicate what hours noise would come from the site.

No significant reduction or increase of noise levels will occur as a result of this project.

3) Proposed measures to reduce or control noise impacts, if any:

None

8. Land and Shoreline use

a. What is the current use of the site and adjacent properties?

Industrial

b. Has the site been used for agriculture? If so, describe.

Unknown

c. Describe any structures on the site.

Industrial glass manufacturing facility which includes silos, water cooling towers, warehouses, manufacturing building, and employee parking lots.

d. Will any structures be demolished? If so, what?

No

e. What is the current zoning classification of the site?

Industrial

f. What is the current comprehensive plan designation of the site?

Unknown

g. If applicable, what is the current shoreline master program designation of the site?

Unknown

h. Has any part of the site been classified as an "environmentally sensitive" area? If so, specify.

Unknown

i. Approximately how many people would reside or work in the completed project?

Project will result in no significant change in current levels of employment.

j. Approximately how many people would the completed project displace?

Project will result in no significant change in current levels of employment.

k. Proposed measures to avoid or reduce displacement impacts, if any:

None

l. Proposed measures to ensure the proposal is compatible with existing and projected land uses and plans, if any:

None

9. Housing

a. Approximately how many units would be provided, if any? Indicate whether high, middle, or low-income housing.

Does not apply

b. Approximately how many units, if any, would be eliminated? Indicate whether high, middle, or low-income housing.

Does not apply

c. **Proposed measures to reduce or control housing impacts, if any:**

Does not apply

10. **Aesthetics**

a. **What is the tallest height of any proposed structure(s), not including antennas; what is the principal exterior building material(s) proposed?**

The furnace to be rebuilt is inside a manufacturing building and no significant changes will occur outside this building.

b. **What views in the immediate vicinity would be altered or obstructed?**

Industrial site - no significant changes.

c. **Proposed measures to reduce or control aesthetic impacts, if any:**

None

11. **Light and Glare**

a. **What type of light or glare will the proposal produce? What time of day would it mainly occur?**

No significant changes from existing levels.

b. **Could light or glare from the finished project be a safety hazard or interfere with views?**

None expected.

c. **What existing off-site sources of light or glare may affect your proposal?**

None.

d. Proposed measures to reduce or control light and glare impacts, if any:

None

12. Recreation

a. What designated and informal recreational opportunities are in the immediate vicinity?

None

b. Would the proposed project displace any existing recreational uses? If so, describe.

No

c. Proposed measures to reduce or control impacts on recreation, including recreation opportunities to be provided by the project or applicant, if any:

None

13. Historic and Cultural Preservation

a. Are there any places or objects listed on, or proposed for, national, state, or local preservation registers known to be on or next to the site? If so, generally describe.

None

b. Generally describe any landmarks or evidence of historic, archaeological, scientific, or cultural importance known to be on or next to the site.

None

c. **Proposed measures to reduce or control impacts, if any:**

None

14. Transportation

a. **Identify public streets and highways serving the site, and describe proposed access to the existing street system. Show on site plans, if any.**

Facility is located on Marginal Way South along an industrial corridor. The project will not alter the access to the existing street system.

b. **Is site currently served by public transit? If not, what is the approximate distance to the nearest transit stop?**

Yes

c. **How many parking spaces would the completed project have? How many would the project eliminate?**

No changes planned from the availability of existing spaces.

d. **Will the proposal require any new roads or streets, or improvements to existing roads or streets, not including driveways? If so, generally describe (indicate whether public or private).**

No

e. **Will the project use (or occur in the immediate vicinity of) water, rail, or air transportation? If so, generally describe.**

Current usage of all transportation needs should not be affected by this project.

f. **How many vehicular trips per day would be generated by the completed project? If known, indicate when peak volumes would occur.**

No changes should occur from existing levels.

g. **Proposed measures to reduce or control transportation impacts, if any:**

None

15. **Public Services**

a. **Would the project result in an increased need for public services (for example, fire protection, police protection, health care, schools, other)? If so, generally describe.**

No increased need for public services is anticipated.

b. **Proposed measures to reduce or control direct impacts on public services, if any.**

None

16. **Utilities**

a. **Circle utilities currently available at the site: electricity, natural gas, water, refuse service, telephone, sanitary sewer, septic system, other.**

b. **Describe the utilities that are proposed for the project, the utility providing the service, and service, and the general construction activities on the site or in the immediate vicinity which might be needed.**

No new additional systems are proposed.

C. SIGNATURE

The above answers are true and complete to the best of my knowledge. I understand that the lead agency is relying on them to make its decision.

Signature: _____

Date Submitted: October 7, 1993

D. SUPPLEMENTAL SHEET FOR NONPROJECT ACTIONS

(Do not use this sheet for project actions)

Because these questions are very general, it may be helpful to read them in conjunction with the list of the elements of the environment.

When answering these questions, be aware of the extent the proposal, or the types of activities likely to result from the proposal, would affect the item at a greater intensity or at a faster rate than if the proposal were not implemented. Respond briefly and in general terms.

1. How would the proposal be likely to increase discharge to water; emissions to air; production, storage, or release of toxic or hazardous substance; or production of noise?

   Cleaner air should result from the new oxy-fuel furnace. The ozone precursor, (NO_X), will be reduced approximately 250 tons per year.

   Proposed measures to avoid or reduce such increase are:

   Project will improve the total existing air quality.

2. How would the proposal be likely to affect plants, animals, fish, or marine life?

   Nitrogen Oxide (NO_X) emissions will be reduced by approximately 250 tons per year resulting in an improved environment for vegetation.

   Proposed measures to protect or conserve plants, animals, fish, or marine life are:

   Project will benefit all species.

3. How would the proposal be likely to deplete energy or natural resources?

   Proposed conversion from a regenerative furnace to an oxy-fuel furnace will reduce natural gas consumption by better fuel utilization.

   Proposed measures to protect or conserve energy and natural resources are:

   None

4. How would the proposal be likely to use or affect environmentally sensitive areas or areas designated (or eligible or under study) for governmental protection; such as parks, wilderness, wild and scenic rivers, threatened or endangered species habitat, historic or cultural sites, wetlands, floodplains, or prime farmlands?

Does not apply.

Proposed measures to protect such resources or to avoid or reduce impacts are:

None

5. How would the proposal be likely to affect land and shoreline use, including whether it would allow or encourage land or shoreline uses incompatible with existing plans?

No significant impact.

Proposed measures to avoid or reduce shoreline and land use impacts are:

None

6. How would the proposal be likely to increase demands on transportation or public services and utilities?

No significant impact.

Proposed measures to reduce or respond to such demand(s) are:

None

7. Identify, if possible, whether the proposal may conflict with local, state, or federal laws or requirements for the protection of the environment.

Proposal will result in bankable emission credits for Nitrogen Oxide (NO_X) emissions from existing inventory levels.

RECOMMENDATION OF REVIEWING ENGINEER

Company: Ball - Incon
Source: Repl Glass Furnace #5
Assigned to: FLA/JMW
Date Assigned: 10/12/93
N/C #: 5193
Rec'd: 10/12/93

Hereby Recommended:
- Approval ☐
- Conditional Approval ☐
- Disapproval ☐

BACT/LAER Analysis:

Circle All Applicable:

NSPS	PSD	CEM	Offset
NESHAPS	I/O/M	Publish	Class I
Visibility Analysis	Model Req'd	Monitor Req'd	Screening Req'd
Records	Report	Source Test	

Lead Agency: PSAPCA / other

Source Located In: TSP-AA, TSP-NAA, Ozone-AA, CO Ozone-NAA, SO_2-AA, SO_2-UNCL

Emission Calculations: NC = Table 1

		PM_{10}	NO	SO_2	CO	
	Old	3.8	109.9	3.7	0.0	lb/hr
	New	2.9	16.5	3.1	0.0	
Potential to Emit	Old	16.6	480.5	16.2	0.0	TPY
	New	12.7	72.3	13.6	0.0	
	Decrease	3.9	408.2	2.6	0.0	
Projected Actual Emissions Letter	Old	28.3	136.2	74.7	0.0	TPY
	New	13.9	105.65	44.5	0.0	
	Decrease	14.4	30.6	30.2	0.0	
#3 Oxy Furnace S.T.		3.61 lb/hr	27.5	11.6	0	lb/yr
		15.8	120.5	50.8	0	

Specific Conditions:

See Permit

S.T. to verify emissions

Emission Summary
Emission: Increase (+) / Decrease (−) / No Change (blank)

Pollutant	Part	SO_2	NO_x	CO	VOC
Tons/Year	13.9	44.5	105.7	0	0
BACT Met					
AQ Stds.					

Review by: Fred Austin — Date: 12-1-93
Approval: [illegible] — Date: 12/2/93
Approval: DDK — Date: 1/24/94

Remittance Advice

Ball-InCon Glass Packaging Corp.

BALL-INCON GLASS PACK. CORP.

Date	Draft No.
10-21-93	00606866
2520	P25977

Date	Invoice/Credit Memo	Type	Description	Gross	Discount	Net
101493	14743		931021 20	75000		75000
			Total ➤	75000		75000

RECEIVED

NOV 04 1993

PUGET SOUND AIR POLLUTION CONTROL AGENCY

NC#5193

INV# 14743

Detach Before Depositing

B-I 112 Rev. 4/93

Ball-InCon Glass Packaging Corp.

BALL-INCON GLASS PACK. CORP.

1509 S. MACEDONIA AVE.

MUNCIE IN 47302-3664

Accounts Payable Draft

Draft No. 00606866

606866

71-65
749

SEVEN HUNDRED FIFTY DOLLARS NO CENTS

Pay to the order of

PUGET SOUND AIR POLLUTION
CONTROL AGENCY
110 UNION STREET, SUITE 500
SEATTLE, WA 98101-2038

Date: 10-21-93

Draft amount: **********750.00

Ball-InCon Glass Packaging Corp.

Payable through First Merchants Bank, Muncie, Indiana 47305

Chief Financial Officer/Authorized Signature

⑈606866⑈ ⑆074900657⑆ 144 633 9⑈

Ball-InCon Glass Packaging Corp.
1509 South Macedonia Avenue, Muncie, IN 47302-3664 (317) 741-7000
Reply to: P.O. Box 4200, Muncie, IN 47307-4200

February 3, 1994

Puget Sound Air
Pollution Control Agency
110 Union Street, Suite 500
Seattle, Washington 98101-7522

RE: Ball-InCon Glass Packaging Corp.
Start Up Notification - Furnace # 5

Gentlemen:

Pursuant to Regulation I, Section 6.09 (a), we wish to advise the agency that the rebuild of our furnace # 5 is complete and the heat up is to commence on Feb. 3, 1994 with production to start on or about Feb 10, 1994.

If there are any questions concerning this notification please feel free to call me direct at 317-741-7116.

Sincerely:

John R. Mino
Senior Engineer, Environmental

JRM

Attach.

cc: F. W. Glinka
Fred Spicer

Notice of Completion

LCV

WARNING:

ion I, Section 6.09(a), requires that the owner or applicant notify the Agency of the completion of the work covered by the application and when its operation will begin. This form is provided for your convenience to assist you in complying with this part of the Regulation.

APPLICANT or OWNER SECTION

Mail to: Puget Sound Air Pollution Control Agency
Plan Review Section
110 Union Street, Suite 500
Seattle, Washington 98101-2038

2/4/94

RECEIVED
FEB 7 1994
PUGET SOUND AIR POLLUTION CONTROL AGENCY

Gentlemen:

The project described below was completed on FEB 3, 1994.

Signature of Owner and/or Applicant	Title	Phone	Date
J R Mino	SENIOR ENGR	317-741-7116	2/3/94

FOR AGENCY USE ONLY

2/9/94

Notice of Construction No. **5193**
Registration No. **11656**

Description

Replace Glass Melting Furnace #5 with oxygen-fuel firing furnace (rated at 205 tons/day) at 35,600 cfm (350F) and retain current electric boosting.

[X] Conditions On Reverse Side

Applicant

JOHN R MINO, SENIOR ENGINEER, ENVIR
BALL-INCON GLASS PACKAGING CORP
1509 S MACEDONIA, MUNCIE, IN, 47302

Owner

BALL-INCON GLASS PACKAGING CORP
5801 E MARGINAL WY S, SEATTLE, WA, 98134-2497

Location

BALL-INCON GLASS PACKAGING CORP, 5801 E MARGINAL WY S, SEATTLE, WA, 98134

[ ] Inspector check [ ] Engineer **FLA** and Inspector check

Follow-up _____ (Estimated completion Date Plus 7)

Date Inspected 2-16-94 Inspector L. Vaughan

REMARKS (2-16-94 @ 1:15 pm) contacted Fred Spicer, Plant Engr, and inspected. The above equipment (Line #5 Furnace was being operated on oxygen-fuel at the time of my inspection.

Form 63-11.1, (1/89)